

AMENDMENTS TO THE DRAWINGS

The attached sheet includes changes to Figure 1, and replaces the original sheet containing Figure 1. The replacement drawing includes the following additional four features from the claims that were identified by the Examiner as missing from Figure 1, with support from the specification as set forth below:

| <u>Added Feature to Figure 1</u> | <u>Support from Specification</u> |
|---|---|
| Measuring and regulation unit | Original claim 1; page 4, lines 14 to 17 combined with page 9, lines 15 to 22; page 11, lines 19 to 25; page 12, line 25 to page 13, line 19; and page 14, lines 5 to 10. |
| Plastic probe guide | Original claim 10; page 7, lines 17 to 20. |
| Bale scales | Original claim 14; page 9, lines 11 to 13 |
| Regulation unit | Original claim 15; page 9, lines 15 to 26 combined with page 11, lines 19 to 25; page 12, line 25 to page 13, line 19; and page 14, lines 5 to 10. |

No new matter has been added by Applicant. Applicant submits that this addresses the objection raised by the Examiner in paragraph 3 of the May 15, 2007 Office Action.

Attachment: Replacement sheet for Figure 1.

REMARKS

Applicant submits the following in response to the May 15, 2007 Office Action. Applicant has amended claims 1 through 15 to more distinctly claim and point out the invention. Applicant respectfully submits that the amendment to the claims in conjunction with the following remarks places the application in condition for allowance.

Specification

Applicant submitted a first Preliminary Amendment, dated August 20, 2004, on entering the national phase in the United States. In the Preliminary Amendment, Applicant added section headings and made corrections to the specification to delete references to the claims in the description. The changes requested by the Preliminary Amendment were not entered into the published application. For this reason, the guidelines and the objection to claim references in the specification as set forth by the Examiner in paragraphs 1 and 2 of the May 15, 2007 Office Action have already been addressed by the Applicant.

Present Invention

The technical problem solved by the present invention is the independent control and regulation of the quantity of filter material and softener compound during the production process so as to maximize the quality of the filter rods. *See Published Application, at [0002].*

The problem is solved by the present invention through a conditioning section with an integrated dosing device for dosing a softener, a formatting section for producing a wrapped filter strand, sensors (for example, S_{m1} and S_{v1}) that detect the mass flow (M_1) of the filter tow material; sensors (for example, S_{m2} and S_{v2}) that detect the sum of the mass flow (M_2) of the filter tow material combined with the softener compound and a measuring and regulation unit that measures and regulates the filter tow material and softener compound independently and continuously. In particular, the present invention is intended:

for the production of cigarette filters with simultaneous regulation of the filter material and softener compound....wherein the device contains a measuring and regulation unit that is coupled with the sensors for measuring the mass flows (M_1 and M_2) in such a manner that both the filter material and the softener compound can be measured and regulated independently.

See Published Application, at [0011].

Double Patenting Rejection

The Examiner rejected Claim 1 on the grounds of non-statutory, obviousness-type double patenting over claim 13 of U.S. Patent No. 7,027,148 (The “‘148 Patent”). Claim 13 of the ‘148 Patent teaches to combine a conventional filter rod manufacturing line with two microwave resonators. The first microwave resonator is disposed upstream and the second microwave resonator is disposed downstream of the feed device for the triacetin (see in particular col. 4, lines 29 to 53). The technical problem sought to be solved is to provide “a reliable and sensitive method and a corresponding apparatus for determining the triacetin content in filter plugs during the manufacture of these filter plugs.” *See* ‘148 Patent, col. 2, lines 3 to 6.

This problem is solved according to the ‘148 Patent by determining the mass and moisture content of the filter tow material without triacetin and of the finished filter plug with triacetin (see in particular column 3, lines 25 to 38) by employing the two microwave resonators in the way stated above for controlling the triacetin addition (*see* column 3, lines 61 to 66) and for giving a warning and/or for switching the equipment off if “the amount of triacetin is below a minimum amount or above a maximum amount” (*see* column 4, lines 1 to 3). The ‘148 Patent only discloses one first microwave sensor for continuously measuring the mass and moisture content of the filter tow material upstream of the feed point for triacetin (the mass and moisture content without added triacetin), and one second microwave sensor for carrying out said measurement of the filter tow material downstream of the feed point for triacetin (with added triacetin), and a control unit for providing a signal if the amount of triacetin is below or above a predefined range.

However, the ‘148 Patent does not disclose: (1) a plurality of sensors (for example, S_{m1} and S_{v1}) for detecting mass flow of filter tow material; (2) a plurality of sensors (for example, S_{m2} and S_{v2}) for detecting a sum of the mass flow of filter tow material and softener compound; and (3) a measuring and regulation unit that is coupled with the sensors for measuring the mass flows in such a manner that both the filter material and the softener compound can be measured and regulated independently as called for in Claim 1. The ‘148 Patent is silent about independently regulating the mass flow of filter tow material and of softener compound by employing a plurality of sensors for detecting mass flow of filter tow material and for detecting a sum of the mass flow of filter tow material and softener compound.

Moreover, a person skilled in the art also would not have been prompted by this reference to modify the apparatus disclosed therein in a way to arrive at the invention of Claim 1. The sensors are not restricted to the particular kind of sensors described and claimed in the '148 Patent. Instead, the invention of Claim 1 resides in the combination and functional interaction of the sensors and the control and regulating device. Nothing in the '148 reference would lead one skilled in the art to modify its disclosure to add multiple sensors and lead to the independent measuring and regulating of the filter tow material and softener compound. Hence, the subject matter of Claim 1 is not obvious over the teaching of the '148 Patent.

Claim Rejections – 35 USC § 112

To address the Examiner's rejections under 35 U.S.C. § 112, Applicant has amended the pending claims. An explanation for the amendments are set forth below:

Claim 1

Applicant amended the claim language relating to dosing device (4) and with respect to the sensors to provide proper antecedents and to clarify the structural limitations. Applicant has also amended the language relating to the "measuring and regulation unit" to overcome the rejection regarding the wording "can be" and to more clearly attribute the structural limitations defined by the measuring and regulation unit. These amendments are derived from the original application, and merely clarify what was in claim 1 as originally submitted. *See Specification, page 4, lines 14 to 17 combined with page 9, lines 15 to 22; page 11, lines 19 to 25; page 12, line 25 to page 13, line 19; and page 14, lines 5 to 10; and original Figure 1.*

Claim 2

The language reciting the features "sensors ($S_{m1}; S_{m2}$)" and "sensors ($S_{v1}; S_{v2}$)" has been amended to correct antecedent bases and to distinguish among the various sensors. This also addresses the Examiner's rejections regarding the wording "when viewed in the moving direction ..." by changing it to "in relation to the moving direction" These amendments are derived from original claim 2 in combination with the original description. *See Specification, page 4, line 19 to page 5, line 1 (sensors); page 10, lines 8 to 17 (filter strand).*

The Examiner stated that “the filter strand” of Claim 2 lacked a sufficient antecedent basis. Applicant respectfully submits that Claim 1 recites “a wrapped filter strand” that is the antecedent for “the filter strand” of Claim 2.

Claims 3 to 6

The language of claims 3 to 6 is amended in accordance with amended claim 2 and to correct for obvious transcription errors.

The wording “before entry into the conditioning section (AF)” defining the position of the sensors in method-terms is replaced by the structural limitation “before the entry of said conditioning section.” Support for this amendment is in the original application. *See Figure 1 (S_{m1}; S_{v1}) combined with Specification, page 5, lines 15 to 17.*

An obvious transcription error in claim 5 is corrected by replacing the term “formatting device (F)” by “formatting section.” This amendment is supported by claim 1 of the PCT application. Moreover, the language reciting the feature “formatting line (6)” is rearranged and changed to “a formatting line with a measuring unit for the formatting line speed” to emphasize that the particular measuring unit recited in the claim is part of the formatting line – and, thus, is to be distinguished from the measuring and regulation unit recited in the main claim. This amendment is based on the original application. *See Figure 1, element (6), in combination with the Specification, page 10, lines 25 to 30.*

Claim 7

The language reciting the features of sensors (S_{m1}; S_{m2}) of Claim 7 is amended to recite “at least one of said mass sensors (S_{m1}; S_{m2}) for detecting the length-related mass m₁ and/or m₂ of the continuous filter strand is a sensor suitable for determining also the moisture content of the filter strand.” This amendment emphasizes that only one, but not both, of the sensors must have this feature. These amendments are derived from original claims 7 and 8 (“and/or”) as well as from claims 13 and 14 in combination with the Specification, page 8, lines 20 to 23; page 9, lines 11 to 13 (“bale scales”) and page 2, lines 22 to 25 (“S-radiation”), respectively; original claim 7 (“the current product”) combined with Specification, page 6, lines 8 to 12 (“moisture, acetate-triacetin mass”) and page 10, lines 8 to 17 (“filter strand”).

In addition, these amendments remedy the Examiner's rejection for lack of antecedent basis in connection with the features "the moisture content" and "the current product."

Claims 8 to 11

The language of claim 8 is amended to conform it to the amendments in claim 2.

The language of claims 9 to 11, dependent on claim 8, is amended to properly use antecedents.

Claim 10 further is amended to comply with the Examiner's request by more clearly defining the structural feature "plastic probe guide" in relation to the structural feature "a closed, tube-shaped resonator." The basis for this amendment is to be found in the original description. *See Specification, page 7, lines 17 to 20 combined with page 10, lines 8 to 11 ("filter strand").*

Claim 12

In compliance with the Examiner's request for Claim 12, the text fragment "The device" is deleted from the claim. In addition, the antecedent "the" is replaced by the proper antecedent "said."

Claims 13 to 15

The language of claims 13 and 14 is amended to conform them with amended claim 2.

In addition, the language of claim 13 reciting the features " β -radiation source" and " β -radiation detector" is replaced by "comprises a β -radiation source and a β -radiation detector." This amendment is made to more clearly point out that: (i) both components are mandatory for the functioning of said sensor, and (ii) it is the inventive mass sensor, which comprises β -radiation source and a β -radiation detector, and not the speed sensor. The basis for this amendment is to be found in the translation of the original application. Specification, page 2, lines 15 to 25.

The language of claim 14 "bale scales are used as a sensor for determining the mass flow M_1 " partly defines the sensors in use-terms. Therefore, the language has been amended to properly recite the structural and functional limitation by replacing the language with "said sensors for detecting mass flow of filter tow material (M_1) are comprised of bale scales."

The language of claim 15 in relation to the feature "measuring and regulation unit" is amended in accordance with amended claim 1. This amendment is further supported by the original description. *See Specification, page 9, lines 24 to 26 combined with page 11, lines 19 to 25; page 12, line 25 to page 13, line 19; and page 14, lines 5 to 10 ("regulation unit"); page 9, lines 15 to 18 ("automatic regulation").*

Claim Rejections – 35 USC § 102

Claim 1 was rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,460,590 to Greiner. Greiner uses a first measuring device 46, namely a beta ray tube, for determining the mass of the filter skeins, and a second measuring means 33, 49 for determining the draw resistance of the individual filter skeins in addition to the mass measurement, or as an alternative measurement (see column 7, line 64 to column 8, line 21).

Greiner does not disclose (1) a plurality of sensors (for example, S_{m1} and S_{v1}) for detecting mass flow of filter tow material; (2) a plurality of sensors (for example, S_{m2} and S_{v2}) for detecting a sum of the mass flow of filter tow material and softener compound; and (3) a measuring and regulation unit that is coupled with the sensors for measuring the mass flows in such a manner that both the filter material and the softener compound can be measured and regulated independently as called for in Claim 1. In other words, the Greiner reference does not disclose sensors for independently detecting the mass flow of filter tow material and a sum of the mass flow of filter tow material and softener compound as set forth in Claim 1. Moreover, Greiner does not disclose measuring and regulating both the filter material and the softener compound independently. Rather, the Greiner reference only discloses a control system 48 which furnishes the mass data from the measuring device 46 and/or the draw resistance data from the optional second measuring means 33, 49 as control signals by which the brake force of a brake unit 4 is adjusted to regulate the mass of the filter skeins (see column 7, lines 58 to 60; column 8, lines 8 to 21, 27 to 34).

Greiner is silent about measuring and regulating the softener compound. In fact, the only indication referring to a softener teaches that the filter tow strips are provided with a softener, e.g. triacetin, in a spray box 14 (see column 7, lines 16 to 22) before they are "collected to a filter skein"

(see column 7, lines 32 to 36). In sum, the cited reference does not teach to regulate the filter material and softener compound independently.

Consequently, the subject matter of new claim 1 is not anticipated by this cited prior art reference.

Claim Rejections – 35 USC § 103

Claims 2-8, 10 and 13-15 were rejected under 35 U.S.C. § 103 as obvious over Greiner combined with U.S. Patent No. 5,736,864 to Möller. In addition, Claims 9, 11 and 12 were rejected under 35 U.S.C. § 103 as obvious over Greiner combined Möller and further in view of the admitted prior art from the Applicant's disclosure.

As set forth above, Greiner discloses a control system which furnishes mass data and/or draw resistance to apply a brake force to regulate the mass of the filter skeins. Greiner fails to disclose or suggest measuring and regulating filter material and softener compound independently through the use of a plurality of sensors.

Combining Greiner with Möller does not render the claimed combinations obvious. Möller is an apparatus for ascertaining the complex dielectric constant of tobacco and has none of the following elements:

- a conditioning section,
- a formatting section,
- a dosing device,
- a plurality of sensors for independently detecting mass flow of filter tow material and a sum of the mass flow of filter tow material and softener compound,

Rather, Möller has two high-frequency resonators 2, 3 for determining the mass and/or the moisture content of tobacco in a flow of smokable material (see column 6, lines 19 to 24; Figure 1 combined with column 4, lines 30 to 50), wherein the flow of smokable material may include filter material (see column 3, lines 23 to 27).

The practical use of the apparatus disclosed by Möller under industrial production conditions is strictly limited to tobacco mass-measurement due to its insensitivity to the minute differences in conductivity, which are crucial in filter rod manufacturing or filter rod mass-measurement, respectively. In other words, since tobacco can store much more moisture than a filter material like cellulose acetate can, the conductivity of the latter not only is much smaller but also requires measuring equipment of much higher sensitivity than the one disclosed in this reference.

In fact, Möller is silent about the composition of such filter material and does not disclose the features "filter tow" and "softener compound." Moreover, Möller does not disclose "a measuring and regulation unit for measuring and regulating both the filter material and the softener compound independently." Rather, Möller discloses a signal-evaluating regulating or control unit for at least one of the resonators and a high-frequency sender (see column 2, line 67 to column 3, line 2) for ascertaining the complex dielectric constant of the smokable material indicative of the mass and/or moisture content of the tested smokable material (see column 3, lines 12 to 17). The signal-evaluating regulating or control unit disclosed in the reference does not control and regulate the mass flow of filter tow material and softener compound - but rather the frequency of the resonators.

Thus, combining Greiner with Möller would still not disclose or suggest independently measuring and regulating the filter tow material and softener compound to achieve a higher quality filter rod. Moreover, one skilled in the art would not consider combining these references. Greiner relates to solving the problem of fluctuations in the quantity of the supplied filter tow strip by subjecting it to a braking force, while Möller was concerned with a determining the dielectric constant of smokable material, thereby determining the mass and/or moisture content of the material. These are two separate and unrelated problems. Nevertheless, even if one skilled in the art had contemplated combining the two teachings, he would replace the first and second measuring means 46, 49 shown in figure 1 of Greiner (also see item 3.1 above) with the two high-frequency resonators 2, 3 shown in figure 1 of Möller (also see item 3.2 above) in order to improve the quality of the measurement and, consequently, to further improve productivity of the manufacturing line and product quality. This would not achieve the claimed invention.

Lastly, none of the admitted prior art from the Applicant's disclosure disclose or suggest the claimed combination of elements.

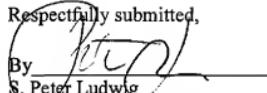
Thus, the Möller reference does not disclose the claim limitations that distinguish Claim 1, and therefore dependent Claims 2 through 15, over Greiner and in further view of the admitted prior art as set forth above. As such, Applicant respectfully submits that Claims 2 through 15 are patentable over the cited combination of references.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated:

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Attachments